

Townsend (C. W.)

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BY

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PRIMARY NASAL DIPHTHERIA.¹

BY CHARLES W. TOWNSEND, M.D.

THAT nasal diphtheria is a severe and often fatal disease, and that it is almost always secondary to diphtheria in the throat, is the generally received idea both from practice and text-books.

Thus Dillon Brown, in Starr's "Text-Book of Children's Diseases," just published, says: "In the nares diphtheria is very serious, on account of the abundant lymph and blood-supply," etc.

W. Gilman Thompson, in Pepper's "American Text-Book of the Theory and Practice of Medicine," also just published, says: "Cases of nasal diphtheria are apt to end fatally unless vigorously treated."

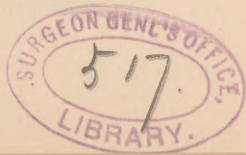
And J. Lewis Smith says, in Keating's "Cyclopædia of Children's Diseases": "Nasal diphtheria involves great danger, from the fact that it is likely to give rise to systemic infection of a grave type." Lower down he says: "Although commonly diphtheritic inflammation of the nasal surfaces is secondary to that of the fauces, it is sometimes the primary inflammation. It may exist for some days before the fauces become affected, and under such circumstances the diagnosis is frequently not made until the disease is in an advanced stage and profound blood-poisoning has occurred."

That mild primary cases sometimes occur, the mildness of whose symptoms may permit them to go unrecognized, is a point I wish to emphasize, and particularly the fact that these cases are of great danger to the public health.

Dr. A. L. Mason² refers to these cases when he says: "Primary nasal diphtheria is probably more

¹ Read before the Boston Society for Medical Improvement, March 12, 1894.

² Burnett: System of Diseases of the Ear, Nose and Throat, vol. 1, p. 270.



common than is supposed, and a not infrequent source of unsuspected danger." Jacobi also alludes to them; and Major³ reports five cases very similar to those I am about to relate. The latter says of nasal diphtheria: "When of a *primary* nature, it is very likely to be overlooked altogether." It seems probable that some cases formerly supposed to be membranous rhinitis were in reality nasal diphtheria.

During the months of November, December and January of this winter fourteen cases of diphtheria occurred among the patients of the Children's Hospital, all but two of which came under my charge in the isolating wards.

The bacteriological examinations were made for the hospital by Dr. J. H. McCollom at the Harvard Medical School, and, it is unnecessary to say, were of the greatest value.⁴

There were seven cases where the nose was affected; in six cases the disease was limited to the pharynx; and in one case an old tracheotomy wound was attacked, the disease spreading to the bronchi and rapidly proving fatal.

The six pharyngeal cases I will pass over briefly. They illustrate the well-known difficulty and oftentimes the impossibility of making a diagnosis of diphtheria from gross appearances or symptoms. They were all mild cases; all recovered. One of the earlier cases began with coryza, and had a nose-bleed on the day preceding the beginning of the throat affection; and although there is no positive proof of nasal diphtheria from the absence of cultures from the nose in this

³ Diphtheria and Scarlet Fever at the Boston City Hospital. Bulletin 4, Harvard Medical School Association.

⁴ "The various cultures from the Children's Hospital were interesting from the fact that in a large number of cases guinea-pigs were inoculated, and in the majority of instances the pigs died in from 24 to 48 hours, showing clearly that we were dealing with a virulent form of the Kleb-Löffler bacillus." [Remarks by Dr. McCollom at the meeting.]

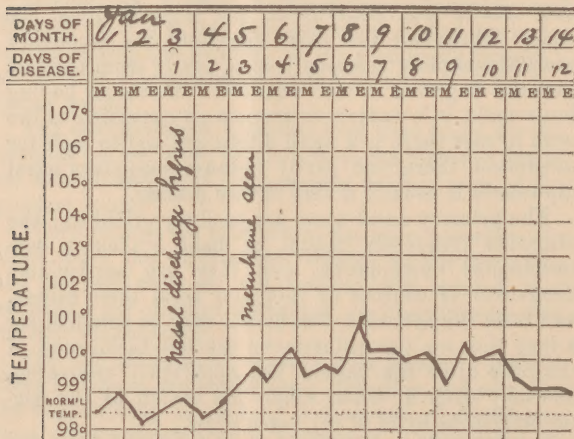
case, it is extremely probable, in view of the other cases, that this one was originally nasal diphtheria, and as such was overlooked.

Of the seven nasal cases of diphtheria, in five the disease was primarily nasal, being confined to the nares alone in four, in one extending later to the pharynx and larynx, while in the remaining two cases the disease was at first pharyngeal, and later involved the nose. These last two cases represent the secondary nasal forms more commonly seen, partly from the fact that the diagnosis of the trouble in the throat having been made, it is natural to suspect an extension to the nose in case there is a nasal discharge, and to look for membrane there, and partly because secondary nasal diphtheria is usually a very severe disease.

The primary nasal cases are easily overlooked; the diagnosis frequently cannot be made without a bacteriological examination, and they are particularly dangerous as sources of infection from these causes, and from the fact that the bacilli may be retained for a long time on the voluminous mucous membrane of the nose after the patient has apparently recovered, and may even at times elude the search of the bacteriologist, as some of my cases show.

CASE I. A boy, four years old, began to have a nasal discharge on January 3d. This increased on the following day, but there was no rise of temperature, and the pulse showed no weakness. The nasal discharge was watery and at times muco-purulent, and was not offensive. On the third day of the coryza careful examination showed some gray membrane in each nostril, and a bacteriological examination demonstrated the Klebs-Löffler bacillus. There were nose-bleeds from time to time. The temperature, as will be seen by the chart, remained between 99° and 100° until the twelfth day of the disease, going once to

101°, the child feeling meanwhile well enough to be up. Examinations by cultures taken from the nose by the platinum wire were made from time to time, and the Klebs-Löffler bacilli were still found on the thirteenth day, or three days after the temperature had dropped. On the fifteenth day, the day following



CASE I.

the cessation of nasal discharge, a culture was taken and no bacilli found.

The child was not allowed to go home until six days later, or a week after the cessation of the nasal discharge, but the sequel shows he still retained some of the Klebs-Löffler bacilli in his nose. Shortly after returning home, a servant, who had not been away for over three weeks, came down with diphtheria. That the child's nose was the probable source of infection was proved by the fact that the specific bacilli were

discovered there when he presented himself at the clinic four weeks after his discharge from the hospital, and over five weeks since his apparent recovery. At this late date, however, a nasal discharge was present, having started up after leaving the hospital.

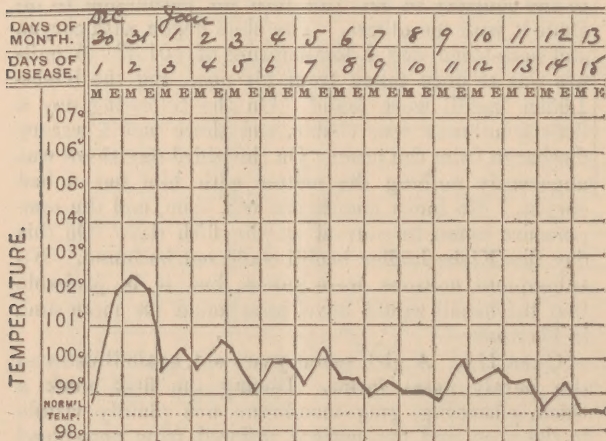
CASE II. A boy, four years old, was the mildest case of all. He was kept isolated in the main hospital, not coming under my charge; and I am indebted to the courtesy of Dr. Bradford for permission to include it with the others. The child began with coryza and nose-bleed and a temperature of 101.3° . A culture was at once taken from his nose, and the Klebs-Löffler bacilli were found. On the following day a little membrane was visible, and there was a watery discharge from the nose. On the third day there was apparently nothing the matter with him but a bad coryza. No more membrane was seen, and the temperature came to normal on the fifth day. On this day the Klebs-Löffler bacilli could not be found. No subsequent cultures were taken, but it is probable that the bacilli would have been found for some time in his nose.

CASE III. A girl, seven years old, again illustrates the purely nasal forms. During the first week a thick, glistening, gray membrane was plainly visible in the nose, and the patient suffered from nose-bleed twice. The Klebs-Löffler bacilli were found until the fourteenth day of the disease, on which day the membrane disappeared from sight. As will be seen by the chart, the temperature continued between 99° and 100° for twelve days after the disappearance of the membrane. She was not discharged from the hospital until all signs of nasal disease had disappeared and the last bacteriological examination was negative.

Two or three days after her return home her brother was taken sick with diphtheria, recovered, but died

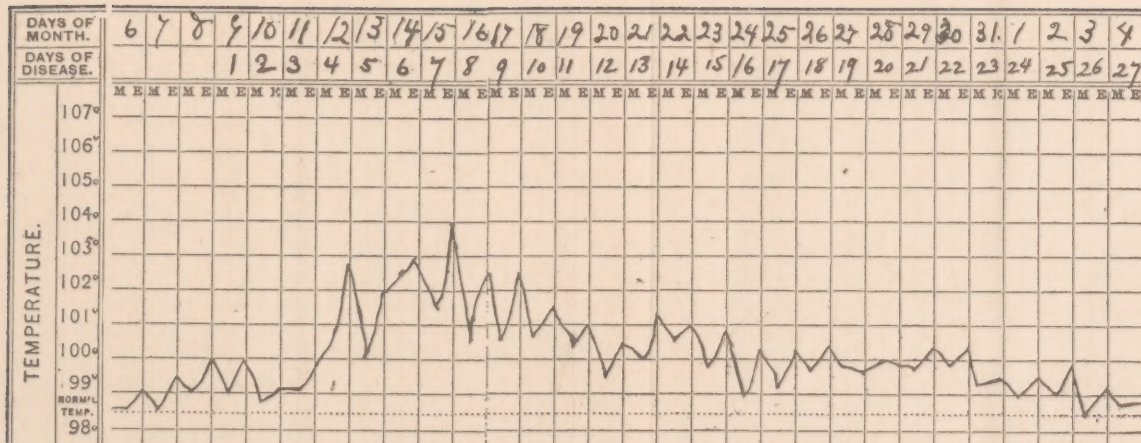
suddenly a week later with, as far as could be learned, suppression of urine.

CASE IV. Girl, two and a half years old, began with a cold in the nose, and at the same time some white circumscribed pin-head spots appeared on the tonsils, but entirely disappeared within forty-eight hours. The diphtheritic bacilli were found in these

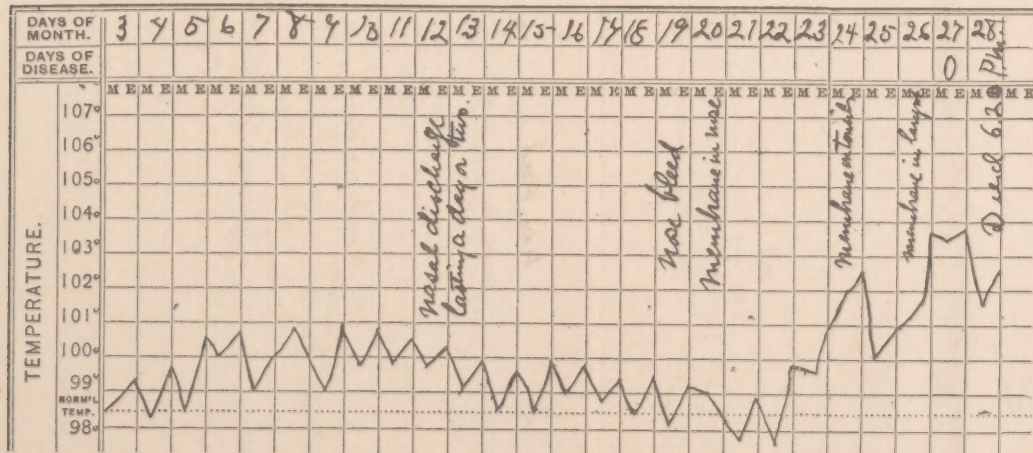


CASE IV.

apparently follicular spots, as well as in the nose. Membrane then appeared in the nose, and there was some sanguino-purulent discharge for a day or two. After this the discharge was slight and muco-purulent or watery, coming and going like an ordinary coryza. At no time after the first three days could one have made from the gross appearances any other diagnosis than a coryza, as there was no membrane to be seen. Except on one occasion, the Klebs-Löffler bacilli



CASE III.



CASE V.

were, however, found at every examination, which was on alternate days, until the twenty-sixth day of the disease, and there was some muco-purulent discharge at intervals until the twenty-third day. The temperature, as will be seen by the chart, started off at first as if in correspondence with the apparent follicular tonsillitis, and then ranged from the third to the fourteenth day between 99° and 100° , remaining normal after the fifteenth day.

The pulse showed but little evidence of weakness, except of an occasional slight nasal obstruction, the child appeared perfectly well after the first four days, and at home would have been, if the diphtheria were unrecognized, an active spreader of the disease.

For the sceptical, as to the value of the bacteriological method of diagnosis, the following case is of interest, for its later violent course confirmed very fully the early bacteriological diagnosis. This was the only primary nasal case in which there occurred an extension of the membrane from the nose.

CASE V. A boy, six years old, said his nose was sore on January 12th. There was a slight discharge at this time, which dried up in a day or two, and nothing was thought of it. Seven days later he had a nose-bleed, and on the following day glistening white membrane was discovered in one nostril, and a nasal discharge began. An examination on this day showed the Klebs-Löffler bacilli. Two days after the membrane appeared it spread to both nostrils, and again two days later both tonsils and the posterior wall of the pharynx were rapidly covered with the membrane. Again, two days later, evidence of laryngeal infection was shown by the croupy cough; and although intubation was performed by Dr. Goldthwait, the patient died on the following day.

An examination of his temperature chart is inter

esting. The child was in the hospital for a stiff knee, and there was no active process going on there to cause an elevation of temperature. It will be seen that for a week before the first temporary nasal discharge occurred the temperature was elevated about 100° . This is certainly suggestive of a beginning of the nasal diphtheria at this time. Another interesting point is the normal and subnormal temperature for three days following the appearance of the membrane in the nose and the discovery of the specific bacilli.

The continued slight elevation of temperature between 99° and 100° seen in several cases when the disease is confined to the nose is interesting. In the following case this continued for a month after the membrane had disappeared from the portion of the nostrils easily visible. With this temperature in bed, the patients seemed to feel perfectly well. If they had been about, they would very likely have shown evidences of debility by feeling tired and irritable. The early history of this case is very suggestive as regards the "follicular tonsillitis."

CASE VI. Boy, six years old, had an attack of what appeared to be follicular tonsillitis on October 15th, lasting five days. No bacilli could be found. On November 2d he again complained of sore throat; his tonsils were swollen and covered with white spots. Again no bacilli could be found. A failure to carry the wire to the bottom of the crypts may have accounted for this, and it is possible that these were in reality mild attacks of diphtheria. On November 20th began a third attack, apparently similar to the others, but the Klebs-Löffler bacilli were found. This time the spots coalesced, spread to the uvula, and presented the clinical appearance of diphtheria. A week later the membrane was seen in the nose; but it disappeared from there on December 7th, and from the

throat on December 16th. A slight nasal discharge continued at intervals, and the bacilli continued to be found in the nose for a month after the membrane ceased to be visible. The temperature ranged from 100° to 102° for the first three weeks of the disease, and from 99° to 100° during the last three weeks, during which time no membrane was visible.

The child was discharged from the hospital apparently well over a month after membrane had disappeared from sight, and nearly a week after a bacteriological examination failed to find the Klebs-Löffler bacilli. The terrible bacilli were still concealed in his nose, however, and would undoubtedly have been discovered if he had been retained longer in the hospital and more examinations had been made. The lapse of a month since the disappearance of the membrane, his apparently complete recovery, as well as the fact that the last bacteriological culture was negative, served to justify his discharge. He was given an antiseptic bath and a complete change of clothing.

Eight days after his return home to a neighboring town the child's sister developed a violent case of diphtheria, the membrane spreading to the nose, roof of the mouth, pharynx and larynx, and proving fatal on the tenth day. The mother and older sister also contracted diphtheria and recovered. There had been no cases of diphtheria reported in the town for two months before this, and but one since. The parents had not visited the diphtheria wards at the hospital for five weeks before the little girl's sickness.

It would seem as if the boy from whom these cases spread had acquired an immunity from the effects of the disease by the length of time in which he harbored the bacilli. That the virus had not become attenuated by its long stay in this individual was proved by the virulence of its action in the fatal case.

CASE VII was of the usual type of secondary nasal diphtheria. The patient was already very sick with surgical sepsis, which obscured the symptoms of diphtheria. The case proved fatal.⁵

All but one of the nasal cases had nose-bleed, slight or severe, at some time in the course of the disease, often when no membrane was visible. Only two of the others had nose-bleed, and in one of them, as I have already remarked, nasal diphtheria is strongly to be suspected. A swelling of the cervical glands in these cases was not noticed.

The source of these cases of diphtheria it is not difficult to trace, as there had been free intercourse between the patients at different times. The habit of picking the nose, so common among children, must furnish an easy method of infection.

By way of summary, the following points seem to me to be of interest :

(1) The fact that primary nasal diphtheria may occur of a very mild type.

(2) The dangerous character of these cases, as they are likely to go unrecognized for the following reasons :

(a) The resemblance of these cases to ordinary coryzas, a membrane not being noticed in some cases except by careful scrutiny.

(b) The normal or only slightly elevated temperature often present, with but little constitutional disturbance.

(c) The intermittent character of the nasal discharge, absent for several days, and then starting up again.

(d) The apparent recovery, even with cessation of nasal discharge, while Klebs-Löffler bacilli are still present.

⁵ Since going off duty on February 1st five cases of diphtheria have occurred at the hospital, four being of the mild nasal type.

(e) The fact that these bacilli have not lost their virulence; or, in other words, the fact that the patient having the bacilli in his nose, although apparently well, may transmit the disease in a fatal form to others.

(f) The difficulty of always finding the bacilli in the nose, even when they are present.

(3) The importance of bacteriological examinations in all suspicious cases of nasal discharge.

(4) The importance of prolonged isolation, together with a refusal to consider a case cured until *several* consecutive negative cultures have been obtained.

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